

Alpha Buildings D&D

Scope: The Alpha Buildings Deactivation and Decommissioning (D&D) project will demolish four Alpha Building complexes at the Y-12 National Security Complex (Y-12) that have been declared excess to the site mission needs. The objective of the project is to remove hazardous materials, deactivate the buildings, remove equipment, demolish all the facilities to grade level, and disposition waste. Each of the four complexes consists of a large process-contaminated facility and ancillary facilities:

- **Alpha-2 Complex** [the Alpha-2 facility (Building 9201-2); ancillary Buildings 9105, 9501-2, 9732-2]
- **Alpha-3 Complex** [the Alpha-3 facility (Building 9201-3); ancillary Buildings 9732-3 and 9999-3]
- **Alpha-4 Complex** [the Alpha-4 facility (Building 9201-4); ancillary Buildings 9501-5, 9720-46, 9804, and 9999-8]
- **Alpha-5 Complex** [the Alpha 5 facility (Building 9201-5); ancillary Buildings 9622, 9983-HF, 9808, 9404-20, 9422-15, 9422-16, 9976, 9767-13, 9422-13, 9404-13, 9409-13, 9416-31, 9416-14, and 9404-18]

The Alpha Buildings were constructed in the 1940s and used for uranium enrichment and other operations. Large quantities of mercury were used at the Alpha-5, Alpha-4, and Alpha-2 facilities for lithium isotope separation processes, resulting in mercury contamination in the buildings and spills to the environment. The four Alpha Building complexes total over 1.7M ft² and are planned for D&D by the Integrated Facility Disposition Program (IFDP) at an estimated cost of approximately \$1.6B.

Environmental Risk and Principal Threat Source Material Rating: **Medium**

- Potential collapse of the Alpha Buildings due to facility deterioration could result in environmental release of radiological and chemical contamination.
- D&D of the mercury use Alpha Buildings (Alpha-5, Alpha-4, and Alpha-2) will allow access to residual mercury contamination that exists within soil and shallow groundwater beneath and adjacent to the buildings, which is a contributing source of mercury flux to nearby Upper East Fork Poplar Creek.

Other Prioritization Factors:

- Airborne mercury poses a continual hazard to workers in former mercury use Alpha Buildings and is a minor contributor to ambient air mercury concentrations at the Y-12 site. At some areas inside the Alpha Buildings, beryllium contamination also poses a hazard to facility workers.
- Facility deterioration could increase the complexity and cost of facility D&D. Surveillance and maintenance costs will continue until the facilities undergo D&D.
- In addition to cleanup cost, potential building collapse could disrupt portions of Y-12 site operations and cost millions of dollars a day in lost productivity.
- Delay of Alpha Buildings D&D would delay the planned transformation of Y-12 into a modernized, cost-effective Nuclear Weapons Complex. Plans to reduce the size of the protected area, thereby reducing security requirements and operational cost, would be postponed.

Overall Prioritization: **Medium**

The deteriorating Alpha-5 Building poses a high risk and is the first building slated for D&D by IFDP at Y-12. The overall prioritization for all of the Alpha Buildings is **Medium**.

The information presented in this fact sheet is preliminary and will be refined during Critical Decision-2/3 development.

January 2009

For more information, please contact the DOE public affairs office at (865) 576-0885.

